CLAIMS

1. A micro-fabrication method characterized by comprising the steps of applying a pulse laser beam to a plastic material to be processed exhibiting a glass phase transition by heating and having a heat-shrinkage to form laser-processed patterns on the surface of or in the above plastic material to be processed, and then heat-treating the plastic material to be processed at a temperature not lower than a glass transition temperature Tg to fine the formed patterns by heat-shrinkage.

2. The micro-fabrication method according to claim 1, characterized by using a plastic material to be processed wherein the formed laser-processed pattern is not lost by the heat treatment.

3. The micro-fabrication method according to claim 1 or 2, characterized in that the formed laser-processed pattern is only fined by the heat treatment without its shape change.

4. The micro-fabrication method according to any one of claims 1 to 3, characterized in that the temperature of the heat treatment T is $Tg \leq T \leq Tg + 200°C$.

5. The micro-fabrication method according to any one of claims 1 to 4, characterized in that the process is carried out while focusing a light beam so as to have the beam spot size of the pulse laser beam at the position for processing the plastic material to be processed to 100 nm to 10 μm.

6. The micro-fabrication method according to claim 5, characterized in that the light beam focusing to the plastic material to be processed of the pulse laser beam is carried out using an objective lens of 0.1 to 1.4 numerical aperture and 5 to 100 times magnification.